

Comments – June 30, 2016

Recommend New Remediation Alternative A (Modified Alternative 6)

The proposed EPA Wyckoff Superfund Site Remediation plan Alternative 7 is not acceptable for the health and safety of Bainbridge Islanders, Western Washington Citizens, or the health of the Puget Sound. This solution is a cheaper faster way to transfer the costly long-term generational problem and steep liability from the Federal EPA to the State, and ultimately to the citizens of Bainbridge Island without properly addressing or containing the cancer causing hazardous waste contamination onsite. Nor does this selected solution adequately meet with the criteria of EPA's Sole Source Aquifer Designation protections associated with the Island's limited groundwater supply.

The question remains what financial ruin could this less acceptable proposal spell for the citizens of Bainbridge Island and future generations? What damage could this easier faster less costly hand off approach do to the limited groundwater supply already impacted with cancer causing contamination in this area of the Island? What will the ultimate long-term adverse health consequences and exponentially greater financial costs look like for citizens when putting off properly eliminating the source of ongoing contaminant migration?

Is this temporary proposal more about making it look good sooner so the looming hazardous Superfund Site every commuter and future home buyer passes everyday on the ferry, can be dismissed easier for the development and profit interests at city hall aligned with the real estate cottage industry on Bainbridge Island? Citizens and property owners of Bainbridge Island are the ultimate losers to the political pressures to do a faster feel good option without utilizing permanent removal solutions available with the Thermal Destruction (TD) of the contamination. TD technology is a good start to halting the ongoing migration associated with over 85 thousand cubic yards or 131 thousand tons (just in the top 20 feet in the problem area) of cancer causing contaminated soils and groundwater associated with the Wyckoff Superfund Site in Eagle Harbor on Bainbridge Island (contaminants including PCP and dioxins/furans are co-located with the PAHs, and the PAHs are present primarily in NAPL).

Perhaps if there were laws, ordinances, and requirements for disclosure for all real estate transactions on Bainbridge Island outlining the community health and limited water supply impacts from the Wyckoff Superfund Site, the EPA would be more inclined to address the remediation efforts with long-term permanent solutions. Solutions that will actually be more cost effective in the long run, and will make a difference in the health and well being of the community.

Tens of millions of taxpayer dollars were spent to complete TarGOST studies and reporting, to define the extent and depth of contamination at the BI Wyckoff

Superfund site. EPA should honor the work of their former colleague who dedicated himself to these studies before he passed away. The EPA should use the costly TarGOST hot spot delineation studies to address the most contaminated areas with Thermal Destruction, instead of solidifying the contamination in place with unproven short-term cement slurry technology.

Problems with the Insitu Cement Solidification Stabilization (ISS)

1. Not a permanent solution. Thermal Destruction (TD) is proven technology that can eliminate hazardous waste permanently.
2. The ISS technology is not proven technology, especially for a site of this magnitude, with brackish (saltwater) saturated glacial soils starting 7 feet below the ground surface, with tidal, storm surge, and wave action influences.
3. ISS technology has never been used to the extent proposed at Wyckoff.
4. Most ISS sites are on the order of 20 years old, therefore the technology is yet to be proven to last as long as the EPA has suggested.
5. There are documented equipment failures and auger refusal for the proposed large borehole drilling and mixing equipment on other projects. Due to the glacial lithology, there will be significant equipment challenges associated with drilling to the proposed depths of 50 feet plus and borehole circumference. The ability to drill to these depths with such a large borehole, and then adequately mix cement slurry to properly encapsulate the hazardous waste (boulders gravel, clay sand) is questionable. Will it end up like the Seattle Tunnel project, with years of Mini Bertha delays and costly equipment failures, resulting in a less than satisfactory outcome at two to three times the cost?
6. No other site has the shallow brackish groundwater/seawater intrusion issues when injecting cement slurry into large boreholes. Therefore there is no accounting for how cement slurry will solidify completely in brackish saltwater that starts at approximately 7 feet below the ground surface at the Superfund Site.
7. How will the proposed cement slurry solidification in brackish saturated contaminated glacial soils hold up to a 7.0 earthquake, knowing we live along the youngest major fault (1100 years old) mapped in the Seattle area that bisects Bainbridge Island?
8. There is no other site that can account for the longevity of concrete slurry injected into saltwater saturated contaminated soils at these volumes. How long did the concrete Viaduct in downtown Seattle, finished in 1953 with metal support structures, last before it had to be replaced? Considering it was badly damaged in the 2001 Nisqually earthquake, and had to be reinforced, less than 48 years. Realizing the viaduct concrete was not injected and cured underground in saltwater saturated contaminated glacial soils as the EPA proposes for the Wyckoff Superfund Site.

Concrete technology has a limited longevity for any project, especially for those underground in brackish saturated soils.

9. The EPA sheet pile wall constructed onsite to impede the migration the hazardous wood preservative chemicals was projected to last 50 years, it corroded and is leaching contamination less than 15 years after it was installed.
10. The EPA spent millions on the failed steam injection pilot test. Are there ISS pilot tests for the proposed depth and borehole circumference planned at Wyckoff before dedicating the project to ISS technology? No.
11. ISS is an irresponsible approach as it leaves the problem to our children and grandchildren when the concrete degrades and allows for pockets of contamination to migrate and disperse further into the environment and aquifer.
12. This technology will most likely force the hazardous waste deeper into the aquifer as it is displaced by concrete slurry, contaminating the limited groundwater further. Contaminants have been displaced like this at other ISS projects.
13. The enormous costs proposed are for a short-term fix only.
14. When the solidification concrete such as it is degrades, the costs to remediate/manage the site will be exponentially greater to address the thousands of tons of degrading contaminated concrete slurry that was added to the site, above and beyond the large contaminant mass that currently exists at the Wyckoff Superfund Site.

The EPA should reevaluate the Remediation Plan Alternative. Recalculate the biased interpretation for rating the short term Solidification higher than the permanent Thermal Destruction with the 9 point criteria to properly rank the permanent solution as the obvious choice. Modify Alternative 6, Call it **Alternative A**. Prioritize Thermal Destruction (TD) as opposed to Insitu Solidification Stabilization (concrete slurry injection) ISS, for the most obvious hot spot zones defined in the TarGOST studies. Include other technologies to bolster TD remediation efforts. Applying several different technologies will assure a greater level of success and allow for dealing with site-specific challenges and problems. Use ISS on a much more limited basis in areas of the site along the perimeter of TD designated cleanup areas. Avoid encasing the surface above where the ground water and aquitard have been compromised by cancer causing contamination documented in EPA reporting.

The EPA can utilize thermal destruction as the lead primary remedial technique. Designate a minimum of 50%-75% TD remediation efforts to TarGOST hot spots. Consider carefully where less than 15 to 25% ISS is appropriate on a limited basis. Again, the ISS technology should not be used in the areas of the project where the contaminant mass has migrated and impacted the aquifer and underlying aquitard, in order to allow these areas to remain open and available

for future technological remediation advancements. Avoid sealing off or effectively pushing contaminants further into the aquifer with the cement slurry as seen in other projects. Utilize and perfect Steam Injection Thermal Enhanced Extraction (TEE) in appropriate areas, as well as Enhanced Aerobic Biodegradation (EAB), which is more passive and slow, to overlap and complement TD and lesser amounts of ISS. Since all of these technologies have varying degrees of success in the right environment with the right application, applying several modalities for remediation would provide for a more successful outcome.

If EPA blunders forward and solidifies hot spot areas with ISS technology, the community loses the ability to apply new and future technologies to manage and remove necessary contaminants at a later date. The EPA should act responsibly and leave the area open to other remedial activities without forcing the contamination further into the groundwater aquifer and complicating the site with thousands of tons of contaminated concrete slurry. As the ISS degrades the costs to remediate will be exponentially greater because the community will be forced to remove the thousands of tons of degrading contaminated concrete slurry that was added to the site, above and beyond the already large contaminant mass that currently exists at the Wyckoff Super Fund Site.

There are some noteworthy politics and history behind the citizens of Bainbridge Island becoming the owners of the large Wyckoff Superfund Site before it was properly remediated in accordance with Federal and State laws to protect human health and the environment, including the ongoing impacts to the limited groundwater supply on the Island. Back around 2008 Christine Rolfes, who at the time was on the Bainbridge Island City Council (now a State Senator up for reelection), along with former Council member/Interim Mayor, and home rule champion, Attorney Andy Maron, Chair of the Open Space Committee at that time, and others, convinced the rest of council and prominent members of the community to vote on behalf of Island citizens to purchase the Superfund Site and thereby assume future liability at a later date. Even though the site was not remediated and remained a toxic mess, the purchase was promoted with the notion that if the city did not quickly purchase the Superfund Site, it would be developed by other interests, and the city would miss an opportunity. Despite legal long term institutional constraints associated with a Superfund Site of this magnitude, that would essentially make this impossible in our lifetime, until the site was properly remediated to a safe level, if ever. Especially since the hundreds of millions of dollars necessary to remediate the site properly in order to permit possible development, were not available and are yet to be a reality. As the Wyckoff Responsible Parties walked off into the sunset free and clear of future liability with the hazardous waste left behind for taxpayers and citizens to deal with for generations to come.

Islanders have been duped enough, and easily recognize how the EPA's poorly conceived plan further burdens the citizens with someone else's costly mess, including the significant health consequences to the community. Time for the EPA and our state representatives and elected officials, including our city council, to adopt an honest approach, and apply permanent clean up technology on some level to the site, and get on with actually addressing the hazardous waste that has yet to be adequately contained per the EPA's own reporting. Demonstrate the intentions to sell the Superfund Site to the citizens of Bainbridge Island for 8 million dollars was not a complete farce orchestrated by many state and federal level politicians and employees behind closed doors.

The Wyckoff family responsible for the Creosote Superfund Sites in the Puget Sound, including the one on Bainbridge Island, who profited from this operation, have donated millions of dollars to election campaigns including the current presidential race. They have proven to have a significant wealth portfolio. Perhaps they could be compelled to help make up the difference in costs associated with Thermal Destruction instead, of the short term ISS proposal, help the Washington State Seattle Bainbridge Community clean up the land to make a park we can all be proud of and enjoy with out putting our health at risk.

As a geologist, co-author of the Sole Source Aquifer Designation Petition, and a member of the community Wyckoff review team for two years, I strongly recommend a modified Alternative 6/Alternative A. Bainbridge has many intelligent involved citizens who are environmentally aware and would appreciate the EPA taking a more permanent solution with their proposed plan. Don't just simply build a new wall, apply thousands of tons of concrete slurry with a cap that will degrade with time, and call it a park, left to fester and further contaminate the environment and limited groundwater supply on Bainbridge Island. Do not unnecessarily relegate the site to costly long-term management requirements with ISS. The required future costs associated with ISS will far exceed the application of Thermal Destruction, which will lead to a more permanent removal and lasting long-term remediation efforts. Do not inadvertently limit the ability to engage rapidly developing future remediation technologies with questionable short-term ISS efforts.

Additionally, as I have stated in my public comments in April of 2016, the EPA, the City, and the Bainbridge Island Parks Department are remiss on avoiding adequately sampling the beach area that is falsely being promoted as clean and safe. There is no magic force field that stops the migration of known hazardous waste from the Upland area and the closed beach areas. All beach areas involved at the Wyckoff Superfund site are subject to intense wave, tidal and storm surges, that spreads the toxic waste further into Eagle Harbor, as we have already seen historically through sampling results. In the past the contamination has resurfaced onto the beaches, and new capping material had to be added to

limit exposure. To advertise to the public that the west beach is clean and safe without properly sampling on an annual basis for contamination is negligent. To subject citizens and other visitors without sample confirmation that the beach is in fact safe, and knowingly expose the community to cancer-causing toxins through simple dermal (skin) contact, borders on criminal behavior. Please demonstrate that the EPA is a responsible, honorable, intelligent, and capable government organization, and sample the beach annually, and post signage which provides the facts clearly, so visitors to the Superfund Site advertised as a park, can decide whether or not they want to expose themselves to toxic materials leaching from the large toxic contaminant mass. Most importantly, do not utilize the Superfund site ground water wells to supply drinking water to Island residents as previously considered.

Thank you for your time

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Resources

1. EPA Sole Source Aquifer Designation
2. Bainbridge Island Limited Groundwater Supply see USGS studies
3. <https://www3.epa.gov/region10/pdf/sites/wyckoff-eagleharbor/factsheet-april2016.pdf>
4. <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=1000612>
5. Fact Sheet: EPA Proposed Additional Cleanup Actions (PDF) (4 pp, 1.2 MB) - April 2016